

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF HEALTH

OFFICE OF RADIOLOGICAL HEALTH
109 Governor Street, 7th Floor, Richmond, Virginia 23219
Office (804) 864-8150
Fax (804) 864-8175

**ENVIRONMENTAL
RADIATION
MONITORING
PROGRAM**

**2017
QUARTERLY REPORT**



COMMONWEALTH OF VIRGINIA
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Sampling Locations

Sampling Locations for Surry Nuclear Power Station



Photo Courtesy of Dominion Power

LOCATION	TYPE	FREQUENCY	PAGE
<u>AIR / CHARCOAL FILTER</u>			
SPS-A-1 Surry Power Station	Air Particulate	Weekly	9 – 11
	Release Gas	Weekly	24 – 26
SPS-A-2 Jamestown State Park - Historical Site	Air Particulate	Weekly	12 – 14
	Release Gas	Weekly	27 – 29
<u>SURFACE WATER</u>			
SPS-W-1 Surry Discharge Canal	Surface Water	Weekly	39 – 41
SPS-W-2 James River – Robious Landing	Surface Water	Weekly	42 – 44
SPS-W-3 James River – Scotland Wharf	Surface Water	Weekly	45 – 47
<u>FISH</u>			
SPS-F-1 James River – .5 miles off Discharge Canal	Edible Fish	2x per year	60
SPS-R-1 James River – Various Locations	Shellfish	Annually	61
<u>SEDIMENT</u>			
SPS-S-1 James River - 1/2 Mile Off Discharge Canal	Sediment	2x per year	62
<u>MILK</u>			
SPS-M-1 Surry County - W.B. Epps Dairy	Raw	Quarterly	68 – 69
<u>DOSIMETER</u>			
D-42 Surry County - Lawnes Creek	Gamma in Air	Quarterly	70 – 72
D-43 Surry County - Route 628	Gamma in Air	Quarterly	
D-44 Jamestown State Park - Historical Site	Gamma in Air	Quarterly	
D-45 Newport News - Lee Hall	Gamma in Air	Quarterly	
D-73 Naval Weapons Station - Enlisted Quarters	Gamma in Air	Quarterly	
D-76 Newport News - Fort Eustis	Gamma in Air	Quarterly	
D-77 Williamsburg - Busch Gardens	Gamma in Air	Quarterly	
D-78 Williamsburg - Williamsburg Airport	Gamma in Air	Quarterly	
D-79 Surry County - Scotland Wharf	Gamma in Air	Quarterly	
D-80 Surry County - Bacon's Castle	Gamma in Air	Quarterly	
D-81 Surry County – Alliance	Gamma in Air	Quarterly	
D-82 Surry County - Hog Point	Gamma in Air	Quarterly	
<u>VEGETATION</u>			
SPS-V-1 Surry County – Local Farmers	Edible Vegetation	2x per year	73

Sampling Locations for North Anna Nuclear Power Station



Photo Courtesy of Dominion Power

LOCATION	TYPE	FREQUENCY	PAGE
<u>AIR / CHARCOAL FILTER</u>			
NAPS-A-1 Louisa County - North Anna Power Station	Air Particulate	Weekly	18 - 20
	Gas Release	Weekly	33 - 35
NAPS-A-2 Louisa County – Bumpass Volunteer Fire	Air Particulate	Weekly	21 - 23
	Gas Release	Weekly	36 - 38
<u>SURFACE WATER</u>			
NAPS-W-1 North Anna Power Discharge Canal	Surface Water	Weekly	48 - 50
NAPS-W-2 North Anna River @ Rt. 651	Surface Water	Weekly	51 - 53
NAPS-W-3 North Anna River @ Rt. 522	Surface Water	Weekly	54 - 56
<u>FISH</u>			
NAPS-F-1 North Anna Lake - Second Cooling Lagoon	Edible Fish	2x per year	60
<u>SEDIMENT</u>			
NAPS-S-1 Waste Treatment shoreline sediment	Sediment	2x per year	62
<u>MILK</u>			
NAPS-M-1 Louisa County - Lakeside Dairy	Raw	Quarterly	66 - 67
<u>DOSIMETER</u>			
D-35 NAPS	Gamma in Air	Quarterly	70 - 72
D-50 Louisa County – Mineral	Gamma in Air	Quarterly	
D-51 Louisa County - Wares Crossroads	Gamma in Air	Quarterly	
D-52 Spotsylvania - Good Hope Church	Gamma in Air	Quarterly	
D-53 Spotsylvania - Route 614	Gamma in Air	Quarterly	
D-54 Louisa County - Frederick's Hall	Gamma in Air	Quarterly	
D-84 Louisa County - Route 685	Gamma in Air	Quarterly	
D-85 Spotsylvania Co. - Route 713	Gamma in Air	Quarterly	
D-86 Louisa County – Bumpass Volunteer Fire	Gamma in Air	Quarterly	
D-87 Spotsylvania Co. - Levy	Gamma in Air	Quarterly	
D-88 Louisa Co. - Rt. 700 (near station)	Gamma in Air	Quarterly	
D-89 Louisa County - Aspen Hill	Gamma in Air	Quarterly	
<u>VEGETATION</u>			
NAPS-V-1 Louisa County – Local Farmers	Edible Vegetation	2x per year	73

Sampling Locations - Babcock & Wilcox

SAMPLE	LOCATION	TYPE	FREQUENCY	PAGE
<u>AIR</u>				
B&W-A-1	Eastern Site Boundary - Ballfield	Air Particulate	Quarterly	75
<u>SURFACE WATER</u>				
B&W-W-1	Eastern Site Boundary - Ballfield	Surface Water	Annually	76
B&W-W-2	James River Riverside Park	Surface Water	Annually	76
<u>SOIL</u>				
B&W-S-1	Eastern Site Boundary - Ballfield	Soil	Annually	76
B&W-S-2	James River Riverside Park	Soil	Annually	76
<u>VEGETATION</u>				
B&W-V-1	Eastern Site Boundary - Ballfield	Grass	Annually	77
B&W-V-2	James River Riverside Park	Grass	Annually	77

Other Sampling Locations in Virginia

SAMPLE	LOCATION	TYPE	FREQUENCY	PAGE
<u>Air Filter & Charcoal</u>				
Control/naturally occurring background				
PSP-A-1	Pocahontas State Park	Air Particulate	Weekly	15 - 17
		Gas Release		30 - 32
<u>Dosimeters</u>				
Control/naturally occurring background				
PSP-D-1	Pocahontas State Park	Air Gamma	Quarterly	70 - 72
<u>Silt</u>				
NNSB-S-1	James River - NNSB - Pier 1	Silt	Quarterly	63
NNSB-S-2	James River - NNSB- Shipway 11	Silt	Quarterly	63
NNSY-S-1	Elizabeth River - NNSY - Drydock #4	Silt	Quarterly	64
NNSY-S-2	Elizabeth River - NNSY - Drydock #8	Silt	Quarterly	64
NNSY-S-3	Elizabeth River - NNSY - Wet Slip #1	Silt	Quarterly	65
<u>Surface Water</u>				
NNSB-W-1	James River - NNSB- Pier 1	Surface Water	Quarterly	57
NNSB-W-2	James River - NNSB- Shipway 11	Surface Water	Quarterly	57
NNSY-W-1	Elizabeth River - NNSY - Drydock #4	Surface Water	Quarterly	58
NNSY-W-2	Elizabeth River - NNSY - Drydock #8	Surface Water	Quarterly	58
NNSY-W-3	Elizabeth River - NNSY - Wet Slip #1	Surface Water	Quarterly	59

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NO DETECTABLE RESULTS "NDR"

In order for a nuclide to be identified in the spectrum and entered into this report, constraints set by the HPGe analysis software need to be satisfied and the results of the confidence index calculation must be greater than the threshold (usually 0.3).

For the maximum confidence index, the following conditions need to be met.

- The nuclide energy peak needs to be within the energy tolerance of the library lines for that nuclide.
- A nuclide with multiple lines, must match the library peaks in the spectrum.
- The number of half-lives that has elapsed, between when the sample was taken and when it was counted, must be less than 10 half-lives or the confidence in the identification is small.

If the confidence index threshold and/or any of the three criteria are not met, then the nuclide is deemed no detectable results, (NDR).

MINIMUM DETECTABLE ACTIVITY "MDA"

MDA as used in this report is defined as the lowest level of radioactivity that can be consistently and accurately detected in a given sample that is identified in the spectrum.

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Analytical Results

Virginia Department of Health

AIR PARTICULATE

January 1, 2017 through September 30, 2017

Surry Nuclear Power Plant – SPS-A-1

Surry Power Station – on site

Week #	Station	Date		Gross Beta Activity pCi/meter ³
		Start	Stop	
1 ¹	SPS-A-1	12/27/16	- 01/03/17	0.02 +/- 0.004
2 ²	SPS-A-1	01/03/17	- 01/09/17	
3	SPS-A-1	01/09/17	- 01/17/17	0.03 +/- 0.003
4 ³	SPS-A-1	01/17/17	- 01/23/17	0.02 +/- 0.003
5	SPS-A-1	01/23/17	- 01/30/17	0.03 +/- 0.005
6	SPS-A-1	01/30/17	- 02/06/17	0.07 +/- 0.010
7	SPS-A-1	02/06/17	- 02/13/17	0.04 +/- 0.010
8	SPS-A-1	02/13/17	- 02/21/17	0.04 +/- 0.010
9	SPS-A-1	02/21/17	- 02/27/17	0.05 +/- 0.010
10	SPS-A-1	02/27/17	- 03/06/17	0.04 +/- 0.005
11	SPS-A-1	03/06/17	- 03/13/17	0.04 +/- 0.006
12	SPS-A-1	03/13/17	- 03/20/17	0.03 +/- 0.005
13	SPS-A-1	03/20/17	- 03/27/17	0.05 +/- 0.007
14	SPS-A-1	03/27/17	- 04/03/17	0.04 +/- 0.006
15	SPS-A-1	04/03/17	- 04/10/17	0.04 +/- 0.010
16	SPS-A-1	04/10/17	- 04/17/17	0.04 +/- 0.010
17 ⁴	SPS-A-1	04/17/17	- 04/24/17	
18 ⁵	SPS-A-1	04/24/17	- 05/01/17	0.03 +/- 0.01

¹ Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

² Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

³ Due to the holiday, 01/16, sample collection was for six days.

⁴ Due to an equipment failure, no sample was collected.

⁵ Air sampler ran for 6 days this collection period, due to equipment maintenance.

Virginia Department of Health

AIR PARTICULATE

January 1, 2017 through September 30, 2017

Surry Nuclear Power Plant – SPS-A-1

Surry Power Station – on site

Week #	Station	Date			Gross Beta Activity pCi/meter ³
		Start		Stop	
19	SPS-A-1	05/01/17	-	05/08/17	0.03 +/- 0.000
20	SPS-A-1	05/08/17	-	05/15/17	0.03 +/- 0.004
21	SPS-A-1	05/15/17	-	05/22/17	0.03 +/- 0.010
22	SPS-A-1	05/22/17	-	05/30/17	0.02 +/- 0.003
23	SPS-A-1	05/30/17	-	06/05/17	0.05 +/- 0.010
24 ⁶	SPS-A-1	06/05/17	-	06/13/17	0.06 +/- 0.010
25 ⁷	SPS-A-1	06/13/17	-	06/19/17	0.03 +/- 0.005
26	SPS-A-1	06/19/17	-	06/26/17	0.04 +/- 0.010
27 ⁸	SPS-A-1	06/26/17	-	07/03/17	
28 ⁹	SPS-A-1	07/03/17	-	07/10/17	0.04 +/- 0.010
29	SPS-A-1	07/10/17	-	07/17/17	0.05 +/- 0.010
30 ¹⁰	SPS-A-1	07/17/17	-	07/24/17	
31 ¹¹	SPS-A-1	07/24/17	-	07/31/17	0.04 +/- 0.010
32	SPS-A-1	07/31/17	-	08/07/17	0.05 +/- 0.010
33	SPS-A-1	08/07/17	-	08/14/17	0.05 +/- 0.010
34	SPS-A-1	08/14/17	-	08/21/17	0.07 +/- 0.010
35	SPS-A-1	08/21/17	-	08/28/17	0.04 +/- 0.010
36	SPS-A-1	08/28/17	-	09/05/17	0.04 +/- 0.010

⁶ Due to scheduling issue, sample was collected for eight days.

⁷ Due to eight-day collection period, week 06/05, collection for this week was 6 days.

⁸ Due to holiday, 7/3 and 7/4 sample was not collected.

⁹ Due to the prior holiday week, air samples were collected from 06/26 – 07/10.

¹⁰ Due to Dominion graded exercise, no samples were analyzed.

¹¹ Due to Dominion graded exercise, air samples were collected from 07/17 – 07/31

Virginia Department of Health

AIR PARTICULATE

January 1, 2017 through September 30, 2017

Jamestown – SPS-A-2

Jamestown State Park & Historic Site

Week #	Station	Date		Gross Beta Activity pCi/meter ³
		Start	Stop	
1 ¹	SPS-A-2	12/27/16	- 01/03/17	0.02 +/- 0.003
2 ²	SPS-A-2	01/03/17	- 01/09/17	
3	SPS-A-2	01/09/17	- 01/17/17	0.02 +/- 0.003
4 ³	SPS-A-2	01/17/17	- 01/23/17	0.02 +/- 0.003
5	SPS-A-2	01/23/17	- 01/30/17	0.03 +/- 0.004
6	SPS-A-2	01/30/17	- 02/06/17	0.07 +/- 0.010
7	SPS-A-2	02/06/17	- 02/13/17	0.05 +/- 0.010
8	SPS-A-2	02/13/17	- 02/21/17	0.06 +/- 0.010
9	SPS-A-2	02/21/17	- 02/27/17	0.04 +/- 0.010
10	SPS-A-2	02/27/17	- 03/06/17	0.03 +/- 0.005
11	SPS-A-2	03/06/17	- 03/13/17	0.04 +/- 0.006
12	SPS-A-2	03/13/17	- 03/20/17	0.03 +/- 0.004
13	SPS-A-2	03/20/17	- 03/27/17	0.04 +/- 0.006
14	SPS-A-2	03/27/17	- 04/03/17	0.04 +/- 0.005
15	SPS-A-2	04/03/17	- 04/10/17	0.04 +/- 0.010
16	SPS-A-2	04/10/17	- 04/17/17	0.04 +/- 0.010
17	SPS-A-2	04/17/17	- 04/24/17	0.02 +/- 0.003
18	SPS-A-2	04/24/17	- 05/01/17	0.04 +/- 0.010

¹ Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

² Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

³ Due to the holiday, 01/16, sample collection was for six days.

Virginia Department of Health

AIR PARTICULATE

January 1, 2017 through September 30, 2017

Jamestown – SPS-A-2

Jamestown State Park & Historic Site

Week #	Station	Date			Gross Beta Activity pCi/meter ³
		Start		Stop	
19	SPS-A-2	05/01/17	-	05/08/17	0.03 +/- 0.000
20	SPS-A-2	05/08/17	-	05/15/17	0.03 +/- 0.004
21	SPS-A-2	05/15/17	-	05/22/17	0.04 +/- 0.010
22	SPS-A-2	05/22/17	-	05/30/17	0.02 +/- 0.004
23	SPS-A-2	05/30/17	-	06/05/17	0.05 +/- 0.010
24 ⁴	SPS-A-2	06/05/17	-	06/13/17	0.07 +/- 0.010
25 ⁵	SPS-A-2	06/13/17	-	06/19/17	0.04 +/- 0.010
26	SPS-A-2	06/19/17	-	06/26/17	0.05 +/- 0.010
27 ⁶	SPS-A-2	06/26/17	-	07/03/17	
28 ⁷	SPS-A-2	07/03/17	-	07/10/17	0.04 +/- 0.010
29	SPS-A-2	07/10/17	-	07/17/17	0.06 +/- 0.010
30 ⁸	SPS-A-2	07/17/17	-	07/24/17	
31 ⁹	SPS-A-2	07/24/17	-	07/31/17	0.04 +/- 0.010
32	SPS-A-2	07/31/17	-	08/07/17	0.06 +/- 0.010
33	SPS-A-2	08/07/17	-	08/14/17	0.06 +/- 0.010
34	SPS-A-2	08/14/17	-	08/21/17	0.05 +/- 0.010
35	SPS-A-2	08/21/17	-	08/28/17	0.04 +/- 0.010
36	SPS-A-2	08/28/17	-	09/05/17	0.04 +/- 0.010

⁴ Due to scheduling issue, sample was collected for eight days.

⁵ Due to eight-day collection period, week 06/05, collection for this week was 6 days.

⁶ Due to holiday, 7/3 and 7/4 sample was not collected.

⁷ Due to the prior holiday week, air samples were collected from 06/26 – 07/10.

⁸ Due to Dominion graded exercise, no samples were analyzed.

⁹ Due to Dominion graded exercise, air samples were collected from 07/17 – 07/31

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Virginia Department of Health

AIR PARTICULATE

January 1, 2017 through September 30, 2017

Pocahontas – PSP-A-1

Pocahontas State Park - Control

Week #	Station	Date			Gross Beta Activity pCi/meter ³
		Start		Stop	
1 ¹	PSP-A-1	12/27/16	-	01/03/17	0.03 +/- 0.004
2 ²	PSP-A-1	01/03/17	-	01/09/17	
3	PSP-A-1	01/09/17	-	01/17/17	0.03 +/- 0.004
4 ³	PSP-A-1	01/17/17	-	01/23/17	0.02 +/- 0.004
5	PSP-A-1	01/23/17	-	01/30/17	0.04 +/- 0.006
6	PSP-A-1	01/30/17	-	02/06/17	0.07 +/- 0.010
7	PSP-A-1	02/06/17	-	02/13/17	0.05 +/- 0.010
8	PSP-A-1	02/13/17	-	02/21/17	0.07 +/- 0.010
9	PSP-A-1	02/21/17	-	02/27/17	0.07 +/- 0.010
10	PSP-A-1	02/27/17	-	03/06/17	0.07 +/- 0.010
11	PSP-A-1	03/06/17	-	03/13/17	0.09 +/- 0.013
12	PSP-A-1	03/13/17	-	03/20/17	0.05 +/- 0.007
13	PSP-A-1	03/20/17	-	03/27/17	0.06 +/- 0.008
14	PSP-A-1	03/27/17	-	04/03/17	0.04 +/- 0.007
15	PSP-A-1	04/03/17	-	04/10/17	0.07 +/- 0.010
16	PSP-A-1	04/10/17	-	04/17/17	0.05 +/- 0.010
17	PSP-A-1	04/17/17	-	04/24/17	0.02 +/- 0.004
18	PSP-A-1	04/24/17	-	05/01/17	0.04 +/- 0.010

¹ Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

² Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

³ Due to the holiday, 01/16, sample collection was for six days.

Virginia Department of Health

AIR PARTICULATE

January 1, 2017 through September 30, 2017

Pocahontas – PSP-A-1

Pocahontas State Park - Control

Week #	Station	Date		Gross Beta Activity pCi/meter ³
		Start	Stop	
19	PSP-A-1	05/01/17	- 05/08/17	0.04 +/- 0.010
20	PSP-A-1	05/08/17	- 05/15/17	0.04 +/- 0.006
21	PSP-A-1	05/15/17	- 05/22/17	0.05 +/- 0.010
22	PSP-A-1	05/22/17	- 05/30/17	0.03 +/- 0.004
23	PSP-A-1	05/30/17	- 06/05/17	0.07 +/- 0.010
24	PSP-A-1	06/05/17	- 06/12/17	0.09 +/- 0.010
25	PSP-A-1	06/12/17	- 06/19/17	0.04 +/- 0.010
26	PSP-A-1	06/19/17	- 06/26/17	0.07 +/- 0.010
27 ⁴	PSP-A-1	06/26/17	- 07/03/17	
28 ⁵	PSP-A-1	07/03/17	- 07/10/17	0.05 +/- 0.010
29	PSP-A-1	07/10/17	- 07/17/17	0.08 +/- 0.010
30 ⁶	PSP-A-1	07/17/17	- 07/24/17	
31 ⁷	PSP-A-1	07/24/17	- 07/31/17	0.06 +/- 0.010
32	PSP-A-1	07/31/17	- 08/07/17	0.07 +/- 0.010
33	PSP-A-1	08/07/17	- 08/14/17	0.09 +/- 0.010
34	PSP-A-1	08/14/17	- 08/21/17	0.07 +/- 0.010
35	PSP-A-1	08/21/17	- 08/28/17	0.09 +/- 0.010
36	PSP-A-1	08/28/17	- 09/05/17	0.06 +/- 0.010

⁴ Due to holiday, 7/3 and 7/4 sample was not collected.

⁵ Due to the prior holiday week, air samples were collected from 06/26 – 07/10.

⁶ Due to Dominion graded exercise, no samples were analyzed.

⁷ Due to Dominion graded exercise, air samples were collected from 07/17 – 07/31

Virginia Department of Health

AIR PARTICULATE

January 1, 2017 through September 30, 2017

North Anna Power Station at Route 700 – NAPS-A-1

Louisa County Route 700 / North Anna Power Station

Week #	Station	Date			Gross Beta Activity pCi/meter ³
		Start		Stop	
1 ¹	NAPS-A-1	12/27/16	-	01/03/17	0.02 +/- 0.004
2 ²	NAPS-A-1	01/03/17	-	01/09/17	
3	NAPS-A-1	01/09/17	-	01/17/17	0.03 +/- 0.004
4 ³	NAPS-A-1	01/17/17	-	01/23/17	0.02 +/- 0.004
5	NAPS-A-1	01/23/17	-	01/30/17	0.03 +/- 0.005
6	NAPS-A-1	01/30/17	-	02/06/17	0.06 +/- 0.010
7	NAPS-A-1	02/06/17	-	02/13/17	0.06 +/- 0.010
8	NAPS-A-1	02/13/17	-	02/21/17	0.06 +/- 0.010
9	NAPS-A-1	02/21/17	-	02/27/17	0.07 +/- 0.010
10	NAPS-A-1	02/27/17	-	03/06/17	0.07 +/- 0.010
11	NAPS-A-1	03/06/17	-	03/13/17	0.07 +/- 0.010
12	NAPS-A-1	03/13/17	-	03/20/17	0.04 +/- 0.006
13	NAPS-A-1	03/20/17	-	03/27/17	0.06 +/- 0.008
14	NAPS-A-1	03/27/17	-	04/03/17	0.06 +/- 0.009
15	NAPS-A-1	04/03/17	-	04/10/17	0.05 +/- 0.010
16	NAPS-A-1	04/10/17	-	04/17/17	0.05 +/- 0.010
17	NAPS-A-1	04/17/17	-	04/24/17	0.05 +/- 0.007
18	NAPS-A-1	04/24/17	-	05/01/17	0.04 +/- 0.01

¹ Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

² Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

³ Due to the holiday, 01/16, sample collection was for six days.

Virginia Department of Health

AIR PARTICULATE

January 1, 2017 through September 30, 2017

North Anna Power Station at Route 700 – NAPS-A-1

Louisa County Route 700 / North Anna Power Station

Week #	Station	Date			Gross Beta Activity pCi/meter ³
		Start		Stop	
19	NAPS-A-1	05/01/17	-	05/08/17	0.04 +/- 0.010
20	NAPS-A-1	05/08/17	-	05/15/17	0.03 +/- 0.005
21	NAPS-A-1	05/15/17	-	05/22/17	0.05 +/- 0.010
22	NAPS-A-1	05/22/17	-	05/30/17	0.03 +/- 0.005
23	NAPS-A-1	05/30/17	-	06/05/17	0.05 +/- 0.010
24	NAPS-A-1	06/05/17	-	06/12/17	0.08 +/- 0.010
25 ⁴	NAPS-A-1	06/12/17	-	06/19/17	
26	NAPS-A-1	06/19/17	-	06/26/17	0.07 +/- 0.010
27 ⁵	NAPS-A-1	06/26/17	-	07/03/17	
28 ⁶	NAPS-A-1	07/03/17	-	07/10/17	0.06 +/- 0.010
29	NAPS-A-1	07/10/17	-	07/17/17	0.08 +/- 0.010
30 ⁷	NAPS-A-1	07/17/17	-	07/24/17	
31 ⁸	NAPS-A-1	07/24/17	-	07/31/17	0.07 +/- 0.010
32	NAPS-A-1	07/31/17	-	08/07/17	0.07 +/- 0.010
33	NAPS-A-1	08/07/17	-	08/14/17	0.14 +/- 0.020
34	NAPS-A-1	08/14/17	-	08/21/17	0.08 +/- 0.010
35	NAPS-A-1	08/21/17	-	08/28/17	0.08 +/- 0.010
36	NAPS-A-1	08/28/17	-	09/05/17	0.05 +/- 0.010

⁴ Due to tripped circuit breaker, air sampler was not operational.

⁵ Due to holiday, 7/3 and 7/4 sample was not collected.

⁶ Due to the prior holiday week, air samples were collected from 06/26 – 07/10.

⁷ Due to Dominion graded exercise, no samples were analyzed.

⁸ Due to Dominion graded exercise, air samples were collected from 07/17 – 07/31

Virginia Department of Health

AIR PARTICULATE

January 1, 2017 through September 30, 2017

Bumpass Fire Station – NAPS-A-2

Louisa County / Bumpass Volunteer Fire Station

Week #	Station	Date			Gross Beta Activity pCi/meter ³
		Start		Stop	
1 ¹	NAPS-A-2	12/27/16	-	01/03/17	0.02+/-0.003
2 ²	NAPS-A-2	01/03/17	-	01/09/17	
3	NAPS-A-2	01/09/17	-	01/17/17	0.02 +/- 0.003
4 ³	NAPS-A-2	01/17/17	-	01/23/17	0.02 +/- 0.003
5	NAPS-A-2	01/23/17	-	01/30/17	0.03 +/- 0.004
6	NAPS-A-2	01/30/17	-	02/06/17	0.06 +/- 0.010
7	NAPS-A-2	02/06/17	-	02/13/17	0.04 +/- 0.010
8	NAPS-A-2	02/13/17	-	02/21/17	0.07 +/- 0.010
9	NAPS-A-2	02/21/17	-	02/27/17	0.07 +/- 0.010
10	NAPS-A-2	02/27/17	-	03/06/17	0.05 +/- 0.008
11	NAPS-A-2	03/06/17	-	03/13/17	0.04 +/- 0.007
12	NAPS-A-2	03/13/17	-	03/20/17	0.03 +/- 0.005
13	NAPS-A-2	03/20/17	-	03/27/17	0.05 +/- 0.006
14	NAPS-A-2	03/27/17	-	04/03/17	0.04 +/- 0.007
15	NAPS-A-2	04/03/17	-	04/10/17	0.05 +/- 0.010
16	NAPS-A-2	04/10/17	-	04/17/17	0.05 +/- 0.010
17	NAPS-A-2	04/17/17	-	04/24/17	0.02 +/- 0.004
18	NAPS-A-2	04/24/17	-	05/01/17	0.03 +/- 0.004

¹ Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

² Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

³ Due to the holiday, 01/16, sample collection was for six days.

Virginia Department of Health

AIR PARTICULATE

January 1, 2017 through September 30, 2017

Bumpass Fire Station – NAPS-A-2

Louisa County / Bumpass Volunteer Fire Station

Week #	Station	Date			Gross Beta Activity pCi/meter ³
		Start		Stop	
19	NAPS-A-2	05/01/17	-	05/08/17	0.03 +/- 0.005
20	NAPS-A-2	05/08/17	-	05/15/17	0.02 +/- 0.004
21	NAPS-A-2	05/15/17	-	05/22/17	0.03 +/- 0.005
22	NAPS-A-2	05/22/17	-	05/30/17	0.02 +/- 0.003
23	NAPS-A-2	05/30/17	-	06/05/17	0.05 +/- 0.010
24	NAPS-A-2	06/05/17	-	06/12/17	0.11 +/- 0.010
25	NAPS-A-2	06/12/17	-	06/19/17	0.03 +/- 0.005
26	NAPS-A-2	06/19/17	-	06/26/17	0.10 +/- 0.010
27 ⁴	NAPS-A-2	06/26/17	-	07/03/17	
28 ⁵	NAPS-A-2	07/03/17	-	07/10/17	0.06 +/- 0.010
29	NAPS-A-2	07/10/17	-	07/17/17	0.07 +/- 0.010
30 ⁶	NAPS-A-2	07/17/17	-	07/24/17	
31 ⁷	NAPS-A-2	07/24/17	-	07/31/17	0.08 +/- 0.010
32	NAPS-A-2	07/31/17	-	08/07/17	0.06 +/- 0.010
33	NAPS-A-2	08/07/17	-	08/14/17	0.10 +/- 0.010
34	NAPS-A-2	08/14/17	-	08/21/17	0.08 +/- 0.010
35	NAPS-A-2	08/21/17	-	08/28/17	0.05 +/- 0.010
36	NAPS-A-2	08/28/17	-	09/05/17	0.04 +/- 0.010

⁴ Due to holiday, 7/3 and 7/4 sample was not collected.

⁵ Due to the prior holiday week, air samples were collected from 06/26 – 07/10.

⁶ Due to Dominion graded exercise, no samples were analyzed.

⁷ Due to Dominion graded exercise, air samples were collected from 07/17 – 07/31

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Surry Nuclear Power Plant – SPS-A-1

Surry Power Station – on site

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
1 ¹	SPS-A-1	12/27/16	-	01/03/17	NDR	NDR	NDR
2 ²	SPS-A-1	01/03/17	-	01/09/17			
3	SPS-A-1	01/09/17	-	01/17/17	NDR	NDR	NDR
4 ³	SPS-A-1	01/17/17	-	01/23/17	NDR	NDR	NDR
5	SPS-A-1	01/23/17	-	01/30/17	NDR	NDR	NDR
6	SPS-A-1	01/30/17	-	02/06/17	NDR	NDR	NDR
7	SPS-A-1	02/06/17	-	02/13/17	NDR	NDR	NDR
8	SPS-A-1	02/13/17	-	02/21/17	NDR	NDR	NDR
9	SPS-A-1	02/21/17	-	02/27/17	NDR	NDR	NDR
10	SPS-A-1	02/27/17	-	03/06/17	NDR	NDR	NDR
11	SPS-A-1	03/06/17	-	03/13/17	NDR	NDR	NDR
12	SPS-A-1	03/13/17	-	03/20/17	NDR	NDR	NDR
13	SPS-A-1	03/20/17	-	03/27/17	NDR	NDR	NDR
14	SPS-A-1	03/27/17	-	04/03/17	NDR	NDR	NDR
15	SPS-A-1	04/04/17	-	04/10/17	NDR	NDR	NDR
16	SPS-A-1	04/10/17	-	04/17/17	NDR	NDR	NDR
17 ⁴	SPS-A-1	04/17/17	-	04/24/17	NDR	NDR	NDR
18 ⁵	SPS-A-1	04/24/17	-	05/01/17	NDR	NDR	NDR

¹ Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

² Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

³ Due to the holiday, 01/16, sample collection was for six days.

⁴ Due to an equipment failure, no sample was collected

⁵ Air sampler ran for 6 days this collection period, due to equipment maintenance.

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Surry Nuclear Power Plant – SPS-A-1

Surry Power Station – on site

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
19	SPS-A-1	05/01/17	-	05/08/17	NDR	NDR	NDR
20	SPS-A-1	05/08/17	-	05/15/17	NDR	NDR	NDR
21	SPS-A-1	05/15/17	-	05/22/17	NDR	NDR	NDR
22	SPS-A-1	05/22/17	-	05/30/17	NDR	NDR	NDR
23	SPS-A-1	05/30/17	-	06/05/17	NDR	NDR	NDR
24 ⁶	SPS-A-1	06/05/17	-	06/13/17	NDR	NDR	NDR
25 ⁷	SPS-A-1	06/13/17	-	06/19/17	NDR	NDR	NDR
26	SPS-A-1	06/19/17	-	06/26/17	NDR	NDR	NDR
27 ⁸	SPS-A-1	06/26/17	-	07/03/17			
28 ⁹	SPS-A-1	07/03/17	-	07/10/17	NDR	NDR	NDR
29	SPS-A-1	07/10/17	-	07/17/17	NDR	NDR	NDR
30 ¹⁰	SPS-A-1	07/17/17	-	07/24/17			
31 ¹¹	SPS-A-1	07/24/17	-	07/31/17	NDR	NDR	NDR
32	SPS-A-1	07/31/17	-	08/07/17	NDR	NDR	NDR
33	SPS-A-1	08/07/17	-	08/14/17	NDR	NDR	NDR
34	SPS-A-1	08/14/17	-	08/14/17	NDR	NDR	NDR
35	SPS-A-1	08/14/17	-	08/21/17	NDR	NDR	NDR
36	SPS-A-1	08/28/17	-	09/05/17	NDR	NDR	NDR

⁶ Due to scheduling issue, sample was collected for eight days.

⁷ Due to eight-day collection period, week 06/05, collection for this week was 6 days.

⁸ Due to holiday, 7/3 and 7/4, samples were not analyzed.

⁹ Due to the prior holiday week, air samples were collected from 06/26 – 07/10.

¹⁰ Due to Dominion graded exercise, no samples were analyzed.

¹¹ Due to Dominion graded exercise, air samples were collected from 07/17 – 07/31.

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Surry Nuclear Power Plant – SPS-A-1

Surry Power Station – on site

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
37 ¹²	SPS-A-1	09/05/17	-	09/11/17			
38 ¹³	SPS-A-1	09/11/17	-	09/18/17	NDR	NDR	NDR
39	SPS-A-1	09/18/17	-	09/25/17	NDR	NDR	NDR

¹² Due to holiday and other scheduling issues, samples were not analyzed.

¹³ Air sample collected from 9/05 – 09/18.

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Jamestown – SPS-A-2

Jamestown State Park & Historic Site

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
Start	Ended						
1 ¹	SPS-A-2	12/27/16	-	01/03/17	NDR	NDR	NDR
2 ²	SPS-A-2	01/03/17	-	01/09/17			
3	SPS-A-2	01/09/17	-	01/17/17	NDR	NDR	NDR
4 ³	SPS-A-2	01/17/17	-	01/23/17	NDR	NDR	NDR
5	SPS-A-2	01/23/17	-	01/30/17	NDR	NDR	NDR
6	SPS-A-2	01/30/17	-	02/06/17	NDR	NDR	NDR
7	SPS-A-2	02/06/17	-	02/13/17	NDR	NDR	NDR
8	SPS-A-2	02/13/17	-	02/21/17	NDR	NDR	NDR
9	SPS-A-2	02/21/17	-	02/27/17	NDR	NDR	NDR
10	SPS-A-2	02/27/17	-	03/06/17	NDR	NDR	NDR
11	SPS-A-2	03/06/17	-	03/13/17	NDR	NDR	NDR
12	SPS-A-2	03/13/17	-	03/20/17	NDR	NDR	NDR
13	SPS-A-2	03/20/17	-	03/27/17	NDR	NDR	NDR
14	SPS-A-2	03/27/17	-	04/03/17	NDR	NDR	NDR
15	SPS-A-2	04/04/17	-	04/10/17	NDR	NDR	NDR
16	SPS-A-2	04/10/17	-	04/17/17	NDR	NDR	NDR
17	SPS-A-2	04/17/17	-	04/24/17	NDR	NDR	NDR
18	SPS-A-2	04/24/17	-	05/01/17	NDR	NDR	NDR

¹ Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

² Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

³ Due to the holiday, 01/16, sample collection was for six days.

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Jamestown – SPS-A-2

Jamestown State Park & Historic Site

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
19	SPS-A-2	05/01/17	-	05/08/17	NDR	NDR	NDR
20	SPS-A-2	05/08/17	-	05/15/17	NDR	NDR	NDR
21	SPS-A-2	05/15/17	-	05/22/17	NDR	NDR	NDR
22	SPS-A-2	05/22/17	-	05/30/17	NDR	NDR	NDR
23	SPS-A-2	05/30/17	-	06/05/17	NDR	NDR	NDR
24 ⁴	SPS-A-2	06/05/17	-	06/13/17	NDR	NDR	NDR
25 ⁵	SPS-A-2	06/13/17	-	06/19/17	NDR	NDR	NDR
26	SPS-A-2	06/19/17	-	06/26/17	NDR	NDR	NDR
27 ⁶	SPS-A-2	06/26/17	-	07/03/17			
28 ⁷	SPS-A-2	07/03/17	-	07/10/17	NDR	NDR	NDR
29	SPS-A-2	07/10/17	-	07/17/17	NDR	NDR	NDR
30 ⁸	SPS-A-2	07/17/17	-	07/24/17			
31 ⁹	SPS-A-2	07/24/17	-	07/31/17	NDR	NDR	NDR
32	SPS-A-2	07/31/17	-	08/07/17	NDR	NDR	NDR
33	SPS-A-2	08/07/17	-	08/14/17	NDR	NDR	NDR
34	SPS-A-2	08/14/17	-	08/14/17	NDR	NDR	NDR
35	SPS-A-2	08/14/17	-	08/21/17	NDR	NDR	NDR
36	SPS-A-2	08/28/17	-	09/05/17	NDR	NDR	NDR

⁴ Due to scheduling issue, sample was collected for eight days.

⁵ Due to eight-day collection period, week 06/05, collection for this week was 6 days.

⁶ Due to holiday, 7/3 and 7/4 sample was not collected.

⁷ Due to the prior holiday week, air samples were collected from 06/26 – 07/10.

⁸ Due to Dominion graded exercise, no samples were analyzed.

⁹ Due to Dominion graded exercise, air samples were collected from 07/17 – 07/31

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Jamestown – SPS-A-2

Jamestown State Park & Historic Site

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
37 ¹⁰	SPS-A-2	09/05/17	-	09/11/17			
38 ¹¹	SPS-A-2	09/11/17	-	09/18/17	NDR	NDR	NDR
39	SPS-A-2	09/18/17	-	09/25/17	NDR	NDR	NDR

¹⁰ Due to holiday and other scheduling issues, samples were not analyzed.

¹¹ Air sample collected from 9/05 – 09/18.

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Pocahontas – PSP-A-1

Pocahontas State Park - Control

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
1 ¹	PSP-A-1	12/27/16	-	01/03/17	NDR	NDR	NDR
2 ²	PSP-A-1	01/03/17	-	01/09/17			
3	PSP-A-1	01/09/17	-	01/17/17	NDR	NDR	NDR
4 ³	PSP-A-1	01/17/17	-	01/23/17	NDR	NDR	NDR
5	PSP-A-1	01/23/17	-	01/30/17	NDR	NDR	NDR
6	PSP-A-1	01/30/17	-	02/06/17	NDR	NDR	NDR
7	PSP-A-1	02/06/17	-	02/13/17	NDR	NDR	NDR
8	PSP-A-1	02/13/17	-	02/21/17	NDR	NDR	NDR
9	PSP-A-1	02/21/17	-	02/27/17	NDR	NDR	NDR
10	PSP-A-1	02/27/17	-	03/06/17	NDR	NDR	NDR
11	PSP-A-1	03/06/17	-	03/13/17	NDR	NDR	NDR
12	PSP-A-1	03/13/17	-	03/20/17	NDR	NDR	NDR
13	PSP-A-1	03/20/17	-	03/27/17	NDR	NDR	NDR
14	PSP-A-1	03/27/17	-	04/03/17	NDR	NDR	NDR
15	PSP-A-1	04/04/17	-	04/10/17	NDR	NDR	NDR
16	PSP-A-1	04/10/17	-	04/17/17	NDR	NDR	NDR
17	PSP-A-1	04/17/17	-	04/24/17	NDR	NDR	NDR
18	PSP-A-1	04/24/17	-	05/01/17	NDR	NDR	NDR

¹ Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

² Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

³ Due to the holiday, 01/16, sample collection was for six days.

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Pocahontas – PSP-A-1

Pocahontas State Park - Control

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
19	PSP-A-1	05/01/17	-	05/08/17	NDR	NDR	NDR
20	PSP-A-1	05/08/17	-	05/15/17	NDR	NDR	NDR
21	PSP-A-1	05/15/17	-	05/22/17	NDR	NDR	NDR
22	PSP-A-1	05/22/17	-	05/30/17	NDR	NDR	NDR
23	PSP-A-1	05/30/17	-	06/05/17	NDR	NDR	NDR
24	PSP-A-1	06/05/17	-	06/12/17	NDR	NDR	NDR
25	PSP-A-1	06/12/17	-	06/19/17	NDR	NDR	NDR
26	PSP-A-1	06/19/17	-	06/26/17	NDR	NDR	NDR
27 ⁴	PSP-A-1	06/26/17	-	07/03/17			
28 ⁵	PSP-A-1	07/03/17	-	07/10/17	NDR	NDR	NDR
29	PSP-A-1	07/10/17	-	07/17/17	NDR	NDR	NDR
30 ⁶	PSP-A-1	07/17/17	-	07/24/17			
31 ⁷	PSP-A-1	07/24/17	-	07/31/17	NDR	NDR	NDR
32	PSP-A-1	07/31/17	-	08/07/17	NDR	NDR	NDR
33	PSP-A-1	08/07/17	-	08/14/17	NDR	NDR	NDR
34	PSP-A-1	08/14/17	-	08/14/17	NDR	NDR	NDR
35	PSP-A-1	08/14/17	-	08/21/17	NDR	NDR	NDR
36	PSP-A-1	08/28/17	-	09/05/17	NDR	NDR	NDR

⁴ Due to holiday, 7/3 and 7/4 sample was not collected.

⁵ Due to the prior holiday week, air samples were collected from 06/26 – 07/10.

⁶ Due to Dominion graded exercise, no samples were analyzed.

⁷ Due to Dominion graded exercise, air samples were collected from 07/17 – 07/31

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Pocahontas – PSP-A-1

Pocahontas State Park - Control

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
37 ⁸	PSP-A-1	09/05/17	-	09/11/17			
38 ⁹	PSP-A-1	09/11/17	-	09/18/17	NDR	NDR	NDR
39	PSP-A-1	09/18/17	-	09/25/17	NDR	NDR	NDR

⁸ Due to holiday and other scheduling issues, samples were not analyzed.

⁹ Air sample collected from 9/05 – 09/18.

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

North Anna Power Station at Route 700 – NAPS-A-1

Louisa County Route 700 / North Anna Power Station

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
1 ¹	NAPS-A-1	12/27/16	-	01/03/17	NDR	NDR	NDR
2 ²	NAPS-A-1	01/03/17	-	01/09/17			
3	NAPS-A-1	01/09/17	-	01/17/17	NDR	NDR	NDR
4 ³	NAPS-A-1	01/17/17	-	01/23/17	NDR	NDR	NDR
5	NAPS-A-1	01/23/17	-	01/30/17	NDR	NDR	NDR
6	NAPS-A-1	01/30/17	-	02/06/17	NDR	NDR	NDR
7	NAPS-A-1	02/06/17	-	02/13/17	NDR	NDR	NDR
8	NAPS-A-1	02/13/17	-	02/21/17	NDR	NDR	NDR
9	NAPS-A-1	02/21/17	-	02/27/17	NDR	NDR	NDR
10	NAPS-A-1	02/27/17	-	03/06/17	NDR	NDR	NDR
11	NAPS-A-1	03/06/17	-	03/13/17	NDR	NDR	NDR
12	NAPS-A-1	03/13/17	-	03/20/17	NDR	NDR	NDR
13	NAPS-A-1	03/20/17	-	03/27/17	NDR	NDR	NDR
14	NAPS-A-1	03/27/17	-	04/03/17	NDR	NDR	NDR
15	NAPS-A-1	04/04/17	-	04/10/17	NDR	NDR	NDR
16	NAPS-A-1	04/10/17	-	04/17/17	NDR	NDR	NDR
17	NAPS-A-1	04/17/17	-	04/24/17	NDR	NDR	NDR
18	NAPS-A-1	04/24/17	-	05/01/17	NDR	NDR	NDR

¹ Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

² Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

³ Due to the holiday, 01/16, sample collection was for six days.

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

North Anna Power Station at Route 700 – NAPS-A-1

Louisa County Route 700 / North Anna Power Station

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
19	NAPS-A-1	05/01/17	-	05/08/17	NDR	NDR	NDR
20	NAPS-A-1	05/08/17	-	05/15/17	NDR	NDR	NDR
21	NAPS-A-1	05/15/17	-	05/22/17	NDR	NDR	NDR
22	NAPS-A-1	05/22/17	-	05/30/17	NDR	NDR	NDR
23	NAPS-A-1	05/30/17	-	06/05/17	NDR	NDR	NDR
24	NAPS-A-1	06/05/17	-	06/12/17	NDR	NDR	NDR
25 ⁴	NAPS-A-1	06/12/17	-	06/19/17	NDR	NDR	NDR
26	NAPS-A-1	06/19/17	-	06/26/17	NDR	NDR	NDR
27 ⁵	NAPS-A-1	06/26/17	-	07/03/17			
28 ⁶	NAPS-A-1	07/03/17	-	07/10/17	NDR	NDR	NDR
29	NAPS-A-1	07/10/17	-	07/17/17	NDR	NDR	NDR
30 ⁷	NAPS-A-1	07/17/17	-	07/24/17			
31 ⁸	NAPS-A-1	07/24/17	-	07/31/17	NDR	NDR	NDR
32	NAPS-A-1	07/31/17	-	08/07/17	NDR	NDR	NDR
33	NAPS-A-1	08/07/17	-	08/14/17	NDR	NDR	NDR
34	NAPS-A-1	08/14/17	-	08/21/17	NDR	NDR	NDR
35	NAPS-A-1	08/21/17	-	08/28/17	NDR	NDR	NDR
36	NAPS-A-1	08/28/17	-	09/05/17	NDR	NDR	NDR

⁴ Due to tripped circuit breaker, air sampler was not operational.

⁵ Due to holiday, 7/3 and 7/4 sample was not collected.

⁶ Due to the prior holiday week, air samples were collected from 06/26 – 07/10.

⁷ Due to Dominion graded exercise, no samples were analyzed.

⁸ Due to Dominion graded exercise, air samples were collected from 07/17 – 07/31

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

North Anna Power Station at Route 700 – NAPS-A-1

Louisa County Route 700 / North Anna Power Station

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
37 ⁹	NAPS-A-1	09/05/17	-	09/11/17			
38 ¹⁰	NAPS-A-1	09/11/17	-	09/18/17	NDR	NDR	NDR
39	NAPS-A-1	09/18/17	-	09/25/17	NDR	NDR	NDR

⁹ Due to holiday and other scheduling issues, samples were not analyzed.

¹⁰ Air sample collected from 9/05 – 09/18.

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Bumpass Fire Station – NAPS-A-2

Louisa County / Bumpass Volunteer Fire Station

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
1 ¹	NAPS-A-2	12/27/16	-	01/03/17	NDR	NDR	NDR
2 ²	NAPS-A-2	01/03/17	-	01/09/17			
3	NAPS-A-2	01/09/17	-	01/17/17	NDR	NDR	NDR
4 ³	NAPS-A-2	01/17/17	-	01/23/17	NDR	NDR	NDR
5	NAPS-A-2	01/23/17	-	01/30/17	NDR	NDR	NDR
6	NAPS-A-2	01/30/17	-	02/06/17	NDR	NDR	NDR
7	NAPS-A-2	02/06/17	-	02/13/17	NDR	NDR	NDR
8	NAPS-A-2	02/13/17	-	02/21/17	NDR	NDR	NDR
9	NAPS-A-2	02/21/17	-	02/27/17	NDR	NDR	NDR
10	NAPS-A-2	02/27/17	-	03/06/17	NDR	NDR	NDR
11	NAPS-A-2	03/06/17	-	03/13/17	NDR	NDR	NDR
12	NAPS-A-2	03/13/17	-	03/20/17	NDR	NDR	NDR
13	NAPS-A-2	03/20/17	-	03/27/17	NDR	NDR	NDR
14	NAPS-A-2	03/27/17	-	04/03/17	NDR	NDR	NDR
15	NAPS-A-2	04/04/17	-	04/10/17	NDR	NDR	NDR
16	NAPS-A-2	04/10/17	-	04/17/17	NDR	NDR	NDR
17	NAPS-A-2	04/17/17	-	04/24/17	NDR	NDR	NDR
18	NAPS-A-2	04/24/17	-	05/01/17	NDR	NDR	NDR

¹ Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

² Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

³ Due to the holiday, 01/16, sample collection was for six days.

Virginia Department of Health

Gamma & Radiogas in Air

January 1, 2017 through September 30, 2017

Bumpass Fire Station – NAPS-A-2

Louisa County / Bumpass Volunteer Fire Station

Week #	Station	Date			I-131 Activity pCi/meter ³	Cs-134 Activity pCi/meter ³	Cs-137 Activity pCi/meter ³
		Start		Ended			
19	NAPS-A-2	05/01/17	-	05/08/17	NDR	NDR	NDR
20	NAPS-A-2	05/08/17	-	05/15/17	NDR	NDR	NDR
21	NAPS-A-2	05/15/17	-	05/22/17	NDR	NDR	NDR
22	NAPS-A-2	05/22/17	-	05/30/17	NDR	NDR	NDR
23	NAPS-A-2	05/30/17	-	06/05/17	NDR	NDR	NDR
24	NAPS-A-2	06/05/17	-	06/12/17	NDR	NDR	NDR
25	NAPS-A-2	06/12/17	-	06/19/17	NDR	NDR	NDR
26	NAPS-A-2	06/19/17	-	06/26/17	NDR	NDR	NDR
27 ⁴	NAPS-A-2	06/26/17	-	07/03/17			
28 ⁵	NAPS-A-2	07/03/17	-	07/10/17	NDR	NDR	NDR
29	NAPS-A-2	07/10/17	-	07/17/17	NDR	NDR	NDR
30 ⁶	NAPS-A-2	07/17/17	-	07/24/17			
31 ⁷	NAPS-A-2	07/24/17	-	07/31/17	NDR	NDR	NDR
32	NAPS-A-2	07/31/17	-	08/07/17	NDR	NDR	NDR
33	NAPS-A-2	08/07/17	-	08/14/17	NDR	NDR	NDR
34	NAPS-A-2	08/14/17	-	08/21/17	NDR	NDR	NDR
35	NAPS-A-2	08/21/17	-	08/28/17	NDR	NDR	NDR
36	NAPS-A-2	08/28/17	-	09/05/17	NDR	NDR	NDR

⁴ Due to holiday, 7/3 and 7/4 sample was not collected.

⁵ Due to the prior holiday week, air samples were collected from 06/26 – 07/10.

⁶ Due to Dominion graded exercise, no samples were analyzed.

⁷ Due to Dominion graded exercise, air samples were collected from 07/17 – 07/31

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

Surry Power Station; Discharge Canal – SPS-W-1

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/03/17 ¹	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		901 +/- 141
01/09/17 ²												
01/17/17 ³	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
01/23/17 ⁴	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		2703 +/- 254
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		526 +/- 122
02/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		601 +/- 122
02/13/17 ^D	<3.0	<3.0	<7.0	<3.0	<7.0	<6.0	<6.0	<3.0	<3.0	<15.0	55.5 +/- 9.9	
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		826 +/- 140
02/27/17 ⁵	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		526 +/- 100
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		1502 +/- 186
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/20/17 ⁶	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		526 +/- 100
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		450 +/- 100
04/03/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		1877 +/- 211
04/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		450 +/- 100
04/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		2703 +/- 254

D=sample analyzed by DCLS

¹ Due to the holiday, 01/02, samples were collected 01/03.

² Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

³ Due to the holiday, 01/16, grab samples were collected 01/17.

⁴ Six-day collection, due to holiday on 01/16

⁵ Grab sample obtained due to water sampler malfunction

⁶ Grab sample obtained due to GFR trip, receptacle reset

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

Surry Power Station; Discharge Canal – SPS-W-1

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	Gross Beta	H3 Activity
04/24/17 ⁷	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		676 +/- 122
05/01/17 ⁸	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
05/08/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		2102 +/- 222
05/15/17 ⁹	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4505 +/- 322
05/15/17 ^D	<3.0	<3.0	<7.0	<3.0	<7.0	<6.0	<4.0	<3.0	<3.0	<13.0	9.72 +/- 8.5	
05/22/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		2853 +/- 254
05/30/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
06/05/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 70
06/13/17 ¹⁰	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		675 +/- 121
06/19/17 ¹¹	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		901 +/- 141
06/26/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		1802 +/- 198
07/03/17 ¹²												
07/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		1126 +/- 157
07/17/17 ¹³	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 70
07/24/17 ¹⁴												
07/31/17 ¹⁵	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 71

D=sample analyzed by DCLS

⁷ Due to GFR being tripped, grab sample collected for analysis 04/24

⁸ Due to GFR being tripped, grab sample collected for analysis 05/01

⁹ Elevated Tritium due to SPS performing an outage on one of the units

¹⁰ Due to scheduling issue, sample was collected for eight days, week 06/13: Due to water sampler failure, grab sampler was collected 06/13

¹¹ Six-day collection, following week 06/13 water sampler reset.

¹² Due to holiday, 7/3 and 7/4, water samples were not collected.

¹³ Due to the holiday, the water sampler collected for 5 days.

¹⁴ Due to Dominion graded exercise, no samples were analyzed.

¹⁵ Due to GRF being tripped, only 16 sample bottles were collected.

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

Surry Power Station; Discharge Canal – SPS-W-1

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	Gross Beta	H3 Activity
08/07/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		901 +/- 141
08/14/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
08/14/17 ^D	<5.0	<5.0	<9.0	<5.0	<11.0	<9.0	<6.0	<5.0	<5.0	<21.0	130.8 +/- 63	
08/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
08/28/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		901 +/- 141
09/05/17 ¹⁵	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
09/11/17 ¹⁶												
09/18/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		676 +/- 122
09/25/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 71

D=sample analyzed by DCLS

¹⁵ Due to GFR being tripped, grab sample collected for analysis 09/05

¹⁶ Due to holiday and other scheduling issues, samples were not analyzed.

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

James River; Robious Landing – SPS-W-2 Surry Control

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/03/17 ¹	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		751 +/- 122
01/09/17 ²												
01/17/17 ³	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
01/23/17 ⁴	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		826 +/- 141
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 100
02/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/13/17 ^D	<5.0	<5.0	<12.0	<5.0	<11.0	<10.0	<24.0	<5.0	<5.0	<49.0	<24.0	
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 99
02/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 71
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 223
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/20/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 70
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 71
04/03/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
04/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR

D=sample analyzed by DCLS

¹ Due to the holiday, 01/02, samples were collected 01/03.

² Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

³ Due to the holiday, 01/16, grab samples were collected 01/17.

⁴ Six-day collection, due to holiday on 01/16

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

James River; Robious Landing – SPS-W-2 Surry Control

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
04/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
04/24/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 71
05/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
05/08/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
05/15/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
05/15/17 ^D	<3.0	<3.0	<7.0	<3.0	<7.0	<6.0	<5.0	<3.0	<3.0	<15.0	<14.2	
05/22/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
05/30/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
06/05/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
06/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		751 +/- 140
06/19/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
06/26/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		751 +/- 121
07/03/17 ⁵												
07/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
07/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
07/24/17 ⁶												
07/31/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
08/07/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		526 +/- 99

D=sample analyzed by DCLS

⁵ Due to holiday, 7/3 and 7/4, water samples were not collected.

⁶ Due to Dominion graded exercise, no samples were analyzed.

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

James River; Robious Landing – SPS-W-2 Surry Control

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs 134	Cs 137	Ba 140	Gross Beta	H3 Activity
08/14/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
08/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 100
08/28/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 223
09/05/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
09/11/17 ⁷												
09/14/17D	<5.0	<5.0	<10.0	<5.0	<11.0	<9.0	<7.0	<5.0	<5.0	<23.0	<8.9	
09/18/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		676 +/- 122
09/25/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 122

D=sample analyzed by DCLS

⁷ Due to holiday and other scheduling issues, samples were not analyzed.

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

James River; Scotland Wharf – SPS-W-3

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/03/17 ¹	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
01/09/17 ²												
01/17/17 ³	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
01/23/17 ⁴	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		976 +/- 141
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 223
02/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 70
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/13/17D	<3.0	<3.0	<8.0	<3.0	<8.0	<6.0	<13.0	<3.0	<3.0	<26.0	<13.8	
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
02/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		450 +/- 100
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/20/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 70
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 100
04/03/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		976 +/- 141
04/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
04/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
04/24/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 71

D=sample analyzed by DCLS

¹ Due to the holiday, 01/02, samples were collected 01/03.

² Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

³ Due to the holiday, 01/16, grab samples were collected 01/17.

⁴ Six-day collection, due to holiday on 01/16

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

James River; Scotland Wharf – SPS-W-3

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
05/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 233
05/08/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		826 +/- 140
05/15/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 222
05/15/17 ^D	<5.0	<5.0	<10.0	<5.0	<11.0	<9.0	<7.0	<5.0	<5.0	<24.0	<14.0	
05/22/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
05/30/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
06/05/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
06/13/17 ⁵	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		450 +/- 99
06/19/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		450 +/- 99
06/26/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		751 +/- 121
07/03/17 ⁶												
07/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		826 +/- 141
07/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
07/24/17 ⁷												
07/31/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 71
08/07/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 70
08/14/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
08/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		751 +/- 122

D=sample analyzed by DCLS

⁵ Due to scheduling issues, Surry's samples were collected on 06/13

⁶ Due to holiday, 7/3 and 7/4, water samples were not collected.

⁷ Due to Dominion Power graded exercise, no samples were analyzed.

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

North Anna Power Station; Discharge Canal – NAPS-W-1

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/03/17 ¹	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4354 +/- 322
01/09/17 ²												
01/17/17 ³	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4880 +/- 345
01/23/17 ⁴	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		5255 +/- 359
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4279 +/- 223
02/06/17 ⁵	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		5556 +/- 356
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4204 +/- 314
02/13/17D	<3.0	<3.0	<7.0	<3.0	<7.0	<5.0	<4.0	<3.0	<3.0	<13.0	<14.0	
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4054 +/- 314
02/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		5556 +/- 366
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4730 +/- 338
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4730 +/- 329
03/20/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		3754 +/- 307
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4655 +/- 331
04/03/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4655 +/- 337
04/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		5105 +/- 345
04/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4655 +/- 389

D=sample analyzed by DCLS

¹ Due to the holiday, 01/02, samples were collected 01/03.

² Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

³ Due to the holiday, 01/16, grab samples were collected 01/17.

⁴ Six-day collection, due to holiday on 01/16

⁵ Grab sample due to water sampler failure

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

North Anna Power Station; Discharge Canal – NAPS-W-1

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
04/24/17 ⁶	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		9760 +/- 488
05/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4354 +/- 322
05/08/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4730 +/- 344
05/15/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		5030 +/- 344
05/15/17 ^D	<4.0	<5.0	<9.0	<5.0	<11.0	<9.0	<7.0	<5.0	<5.0	<22.0	<13.4	
05/22/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		6381 +/- 380
05/30/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4429 +/- 329
06/05/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4505 +/- 321
06/12/17 ⁷	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		6006 +/- 371
06/19/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		5856 +/- 365
06/26/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		5931 +/- 370
07/03/17 ⁸												
07/10/17 ⁹	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		5631 +/- 358
07/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		3979 +/- 307
07/24/17 ¹⁰												
07/31/17 ¹¹	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		3604 +/- 300
08/07/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		7132 +/- 398

⁶ Elevated Tritium level, verified with Dominion

⁷ Due to water sampler failure, grab sample was obtained.

⁸ Due to holiday, 7/3 and 7/4, water samples were not collected.

⁹ Due to the holiday, the water sampler collected for 5 days.

¹⁰ Due to Dominion Power graded exercise, no samples were analyzed.

¹¹ Due to water sample malfunction, grab sample was obtained.

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

North Anna Power Station; Discharge Canal - NAPS-W-1

Gamma and Tritium Activity – pCi/Liter

[illegible]

¹² Due to holiday and other scheduling issues, samples were not analyzed.

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

North Anna River; Route 651 – NAPS-W-2

North Anna Control

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/03/17 ¹	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 99
01/09/17 ²												
01/17/17 ³	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
01/23/17 ⁴	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		826 +/- 141
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
02/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 70
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
02/13/17 ^D	<3.0	<3.0	<7.0	<3.0	<7.0	<6.0	<7.0	<3.0	<3.0	<18.0	<13.3	
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
02/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 71
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/20/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 223
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 71
04/03/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		601 +/- 122
04/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 223

D=sample analyzed by DCLS

¹ Due to the holiday, 01/02, samples were collected 01/03.

² Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

³ Due to the holiday, 01/16, grab samples were collected 01/17.

⁴ Six-day collection, due to holiday on 01/16

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

North Anna River; Route 651 – NAPS-W-2

North Anna Control

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
04/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
04/24/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 71
05/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
05/08/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
05/15/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
05/15/17 ^D	<3.0	<3.0	<6.0	<3.0	<7.0	<5.0	<4.0	<3.0	<3.0	<11.0	<13.3	
05/22/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
05/30/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
06/05/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
06/12/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		526 +/- 99
06/19/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
06/26/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 70
07/03/17 ⁵												
07/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
07/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
07/24/17 ⁶												
07/31/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 223
08/07/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		450 +/- 99
08/14/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR

D=sample analyzed by DCLS

⁵ Due to holiday, 7/3 and 7/4, water samples were not collected.

⁶ Due to Dominion Power graded exercise, no samples were analyzed.

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

North Anna River; Route 651 – NAPS-W-2

North Anna Control

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
08/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		676 +/- 122
08/28/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
09/05/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
09/11/17 ⁷												
09/14/17 ^D	<3.0	<3.0	<7.0	<3.0	<7.0	<5.0	<3.0	<3.0	<3.0	<11.0	<4.6	
09/18/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		300 +/- 99
09/25/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 212

⁷ Due to holiday and other scheduling issues, samples were not analyzed.

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

North Anna River; Route 522 – NAPS-W-3

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
01/03/17 ¹	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		901 +/- 157
01/09/17 ²												
01/17/17 ³	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		526 +/- 100
01/23/17 ⁴	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		976 +/- 141
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 100
02/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
02/13/17 ^D	<5.0	<5.0	<11.0	<5.0	<11.0	<9.0	<11.0	<5.0	<3.0	<31.0	<14.3	
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		375 +/- 99
02/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		75 +/- 223
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
03/20/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 71
04/03/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		526 +/- 99
04/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
04/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
04/24/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		676 +/- 122

D=sample analyzed by DCLS

¹ Due to the holiday, 01/02, samples were collected 01/03.² Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.³ Due to the holiday, 01/16, grab samples were collected 01/17.⁴ Six-day collection, due to holiday on 01/16

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30,2017

North Anna River; Route 522 – NAPS-W-3

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
05/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		150 +/- 70
05/08/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		225 +/- 70
05/15/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		526 +/- 122
05/15/17 ^D	<5.0	<5.0	<10.0	<5.0	<11.0	<9.0	<9.0	<5.0	<6.0	<27.0	<14.1	
05/22/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		976 +/- 158
05/30/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		1201 +/- 172
06/05/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		NDR
06/12/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		2177 +/- 222
06/19/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		1426 +/- 186
06/26/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		2553 +/- 242
07/03/17 ⁵												
07/10/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		2252 +/- 233
07/17/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		2553 +/- 244
07/24/17 ⁶												
07/31/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		2477 +/- 245
08/07/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		3829 +/- 298
08/14/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		3003 +/- 299
08/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4505 +/- 223
08/28/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4054 +/- 331

D=sample analyzed by DCLS

⁵ Due to holiday, 7/3 and 7/4, water samples were not collected.

⁶ Due to Dominion Power graded exercise, no samples were analyzed.

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SURFACE WATER

January 1, 2017 through September 30,2017

North Anna River; Route 522 – NAPS-W-3

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	Gross Beta	H3 Activity
09/05/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		3153 +/- 273
09/11/17 ⁷												
09/14/17D	<3.0	<3.0	<6.0	<3.0	<7.0	<6.0	<4.0	<3.0	<3.0	<13.0	<4.2	
09/18/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		4354 +/- 329
09/25/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR		5556 +/- 360

D=sample analyzed by DCLS

⁷ Due to holiday and other scheduling issues, samples were not analyzed.

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SURFACE WATER

January 1, 2017 through September 30, 2017

Newport News Shipbuilding

James River – Pier 1
NNSB-W-1

Qtr.	Date collected	Gamma Activity – pCi/liter						Gross Alpha pCi/liter	Gross Beta pCi/liter
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95		
1st	03/21/17	< 44.0	< 6.0	< 20.0	< 5.0	< 12.0	< 10.0	-	175.9 +/- 12
2nd	06/28/17	< 31.0	< 5.0	< 11.0	< 5.0	< 11.0	< 9.0	-	202.8 +/- 43.3
3rd ¹	09/29/17	< 13.0	< 3.0	< 4.0	< 3.0	< 7.0	< 5.0	<292.5	208.3+/- 68.4

James River – Shipway #11
NNSB-W-2

Qtr.	Date collected	Gamma Activity – pCi/liter						Gross Alpha pCi/liter	Gross Beta pCi/liter
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95		
1st	03/21/17	< 32.0	< 3.0	< 19.0	< 3.0	< 7.0	< 7.0	-	167.4 +/- 12.2
2nd	06/28/17	< 24.0	< 3.0	< 10.0	< 3.0	< 8.0	< 6.0	-	172.1 +/- 40
3rd ²	09/29/17	< 13.0	< 3.0	< 4.0	< 3.0	< 7.0	< 6.0	<249.9	225.2+/- 69.5

¹ DCLS provided Gross Alpha analysis for this quarter.

² DCLS provided Gross Alpha analysis for this quarter.

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

Norfolk Naval Shipyard

Elizabeth River – Dry Dock #4
Norfolk Naval Shipyard NNSY-W-1

Qtr.	Date collected	Gamma Activity – pCi/liter						Gross Alpha pCi/liter	Gross Beta pCi/liter
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95		
1st	03/21/17	< 29.0	< 3.0	< 16.0	< 3.0	< 7.0	< 6.0	< 61.4	185.8 ± 12.6
2nd	06/28/17	< 22.0	< 3.0	< 10.0	< 3.0	< 8.0	< 6.0	< 266.6	186.2 ± 40.7
3rd	09/29/17	< 14.0	< 3.0	< 5.0	< 3.0	< 7.0	< 6.0	< 237.0	196.8 ± 51.1

Elizabeth River – Dry Dock #8
Norfolk Naval Shipyard NNSY-W-2

Qtr.	Date collected	Gamma Activity – pCi/liter						Gross Alpha pCi/liter	Gross Beta pCi/liter
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95		
1st	03/21/17	< 57.0	< 5.0	< 31.0	< 5.0	< 11.0	< 11.0	< 72.6	53.3 ± 14.6
2nd	06/28/17	< 15.0	< 3.0	< 6.0	< 3.0	< 8.0	< 6.0	< 348.3	204.7 ± 43.9
3rd	09/29/17	< 15.0	< 3.0	< 5.0	< 3.0	< 7.0	< 6.0	< 321.7	183.7 ± 50.3

Virginia Department of Health

SURFACE WATER

January 1, 2017 through September 30, 2017

Norfolk Naval Shipyard

Elizabeth River – Wet Slip #1
Norfolk Naval Shipyard NNSY-W-3

Qtr.	Date collected	Gamma Activity – pCi/liter						Gross Alpha pCi/liter	Gross Beta pCi/liter
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95		
1st	03/21/17	< 59.0	< 6.0	< 32.0	< 5.0	< 12.0	< 11.0	< 51.4	176.9 ± 12
2nd	06/28/17	< 40.0	< 5.0	< 17.0	< 5.0	< 11.0	< 10.0	< 419.2	179.8 ± 41.5
3rd	09/29/17	< 18.0	< 3.0	< 7.0	< 3.0	< 7.0	< 6.0	< 330.6	206.3 ± 51.7

Virginia Department of Health

FISH

January 1, 2017 through September 30, 2017

Dominion Nuclear Power Station

Location Type of fish	Date Collected	Isotope	pCi/gram
North Anna 2 nd Cooling Lagoon	04/19/17	Ba-140	<0.03 pCi/g
		Cs-134	<0.01 pCi/g
		Cs-137	0.01 +/- 0.01 pCi/g
		Co-58	<0.01 pCi/g
		Co-60	<0.01 pCi/g
		I-131	<0.02 pCi/g
		Fe-59	<0.01 pCi/g
		Mn-54	<0.01 pCi/g
		Ru-106	<0.03 pCi/g
		Ag-110M	<0.01 pCi/g
NAPS- F-1 (Fish)	04/19/17	Zn-65	<0.01 pCi/g
		Nb-95	<0.01 pCi/g
Surry Discharge Canal	04/05/17	Ba-140	<0.04 pCi/g
		Cs-134	<0.01 pCi/g
		Cs-137	<0.01 pCi/g
		Co-58	<0.01 pCi/g
		Co-60	<0.01 pCi/g
		I-131	<0.02 pCi/g
		Fe-59	<0.01 pCi/g
		Mn-54	<0.01 pCi/g
		Ru-106	<0.04 pCi/g
		Ag-110M	<0.01 pCi/g
SPS-F-1 (Fish)	04/05/17	Zn-65	<0.01 pCi/g
		Nb-95	<0.01 pCi/g

Note: Fish samples collected during the 2nd and 4th quarter.

Virginia Department of Health

SHELLFISH

January 1, 2017 through September 30, 2017

Location Type of fish	Date Collected	Isotope	pCi/gram
Surry Power Station	04/03/17	Ba-140	<0.02 pCi/g
		Cs-134	<0.01 pCi/g
		Cs-137	<0.01 pCi/g
		Co-58	<0.01 pCi/g
		Co-60	<0.01 pCi/g
SPS-R-1		I-131	<0.01 pCi/g
(Clams and Oysters)		Fe-59	<0.01 pCi/g
		Mn-54	<0.01 pCi/g
		Ru-106	<0.03 pCi/g
		Ag-110M	<0.01 pCi/g
		Zn-65	<0.01 pCi/g
		Nb-95	<0.01 pCi/g

Note: Shellfish are collected annually when available.

Virginia Department of Health

SEDIMENT

January 1, 2017 through September 30, 2017

Surry Power Station Discharge Canal, James River – SPS-S-1

Quarter	Date Collected	Gamma Activity pCi/gram			
		Cs-134	Cs-137	Co-58	Co-60
1st	02/14/17	<0.01 pCi/g	<0.01 pCi/g	<0.01 pCi/g	<0.01 pCi/g
3rd	08/01/17	<0.01 pCi/g	<0.01 pCi/g	<0.01 pCi/g	<0.01 pCi/g

North Anna Power Waste Treatment NAPS-S-1

Quarter	Date Collected	Gamma Activity pCi/gram			
		Cs-134	Cs-137	Co-58	Co-60
2nd	04/20/17	<0.01 pCi/g	<0.01 pCi/g	<0.01 pCi/g	<0.01 pCi/g

Note: Sediment samples are collected bi-annually.

Virginia Department of Health

SILT

January 1, 2017 through September 30, 2017

Newport News Shipbuilding

James River – Pier 1

NNSB-S-1

Qtr.	Date Collected	Gamma Activity pCi/gram				Gross Alpha pCi/gram	Gross Beta pCi/gram
		Cs-134	Cs-137	Co-58	Co-60		
1st	03/21/17	-	-	-	-	Sample compromised ~ unable to analyze	
2nd	06/28/17	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	-	27.4 ± 4.8
3rd ¹	09/29/17	< 0.01	< 0.01	< 0.01	< 0.01	<3.8	<7

James River – Shipway 11

NNSB-S-2

Qtr.	Date Collected	Gamma Activity pCi/gram				Gross Alpha pCi/gram	Gross Beta pCi/gram
		Cs-134	Cs-137	Co-58	Co-60		
1st	03/21/17	< 0.01	0.03 ± 0.01	< 0.01	< 0.01	-	28.9 ± 4.5
2nd	06/28/17	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	-	27.0 ± 4.8
3rd ²	09/29/17	< 0.01	0.01 ± 0.01	< 0.01	< 0.01	9.35 ± 5	17.3 ± 5.2

¹ DCLS provided Gross Alpha analysis for this quarter.

² DCLS provided Gross Alpha analysis for this quarter.

Virginia Department of Health

SILT

January 1, 2017 through September 30, 2017

Norfolk Naval Shipyard

Elizabeth River Dry Dock #4
NNSY-S-1

Qtr.	Date Collected	Gamma Activity pCi/gram				Gross Alpha pCi/gram	Gross Beta pCi/gram
		Cs-134	Cs-137	Co-58	Co-60		
1st	03/21/17	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	15.59 ± 7.9	26.3 ± 4.4
2nd	06/28/17	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	<16.1	31.0 ± 5.2
3rd	09/29/17	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	18.79 ± 9	24.7 ± 5.9

Elizabeth River Dry Dock #8
NNSY-S-2

Qtr.	Date Collected	Gamma Activity pCi/gram				Gross Alpha pCi/gram	Gross Beta pCi/gram
		Cs-134	Cs-137	Co-58	Co-60		
1st	03/21/17	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	29.4 ± 4.5	18 ± 7.8
2nd	06/28/17	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	<12.2	27.4 ± 4.8
3rd	09/29/17	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	10.98 ± 7.0	27.0 ± 6.0

Virginia Department of Health

SILT

January 1, 2017 through September 30, 2017

Norfolk Naval Shipyard

Elizabeth River Wet Slip #1
NNSY-S-3

Qtr.	Date Collected	Gamma Activity pCi/gram				Gross Alpha pCi/gram	Gross Beta pCi/gram
		Cs-134	Cs-137	Co-58	Co-60		
1st	03/21/17	< 0.01	0.03 ± 0.01	< 0.01	< 0.01	< 8.1	18.4 ± 4.0
2nd	06/28/17	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	< 21.2	23.9 ± 4.5
3rd	09/29/17	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	13.25 ± 7.3	22.1 ± 5.5

Virginia Department of Health

Milk

January 1, 2017 through September 30, 2017

Louisa County - Lakeside Dairy NAPS-M-1 1st Quarter Date: 01/26/2017		
Isotope	Results - pCi/liter	
Ba-140	< 12.0 pCi/L	
Cs-134	< 3.0 pCi/L	
Cs-137	< 4.0 pCi/L	
K-40	1.6 ± 0.1 g/L	
I-131	< 3.0 pCi/L	
Sr-89	< 4.0 pCi/L	
Sr-90	0.79 ± 0.42 pCi/L	
Louisa County - Lakeside Dairy NAPS-M-1 2nd Quarter Date: 04/12/2017		
Isotope	Results - pCi/liter	
Ba-140	< 11.0 pCi/L	
Cs-134	< 3.0 pCi/L	
Cs-137	< 3.0 pCi/L	
K-40	1.6 ± 0.1 g/L	
I-131	< 3.0 pCi/L	
Sr-89	< 4.0 pCi/L	
Sr-90	< 0.34 pCi/L	

Virginia Department of Health

Milk

January 1, 2017 through September 30, 2017

Louisa County - Lakeside Dairy NAPS-M-1

3rd Quarter Date: 07/07/2017

Isotope	Results - pCi/liter
Ba-140	< 22.0 pCi/L
Cs-134	< 5.0 pCi/L
Cs-137	< 5.0 pCi/L
K-40	1.4 ± 0.1 g/L
I-131	< 7.0 pCi/L
Sr-89	< 4.0 pCi/L
Sr-90	0.72 ± 0.43 pCi/L

Virginia Department of Health

Milk

January 1, 2017 through September 30, 2017

Surry County - Epps Dairy SPS-M-1 1st Quarter Date: 01/26/2017		
Isotope	Results - pCi/liter	
Ba-140	< 20.0 pCi/L	
Cs-134	< 5.0 pCi/L	
Cs-137	< 4.0 pCi/L	
K-40	1.5 ± 0.1 g/L	
I-131	< 5.0 pCi/L	
Sr-89	< 4.0 pCi/L	
Sr-90	0.85 ± 0.46 pCi/L	

Surry County - Epps Dairy SPS-M-1 2nd Quarter Date: 04/03/2017		
Isotope	Results - pCi/liter	
Ba-140	< 20.0 pCi/L	
Cs-134	< 5.0 pCi/L	
Cs-137	< 6.0 pCi/L	
K-40	1.6 ± 0.1 g/L	
I-131	< 6.0 pCi/L	
Sr-89	< 4.0 pCi/L	
Sr-90	0.79 ± 0.46 pCi/L	

Virginia Department of Health

Milk

January 1, 2017 through September 30, 2017

Surry County - Epps Dairy SPS-M-1 3rd Quarter Date: 07/07/2017	
Isotope	Results - pCi/liter
Ba-140	< 13.0 pCi/L
Cs-134	< 3.0 pCi/L
Cs-137	< 4.0 pCi/L
K-40	1.6 ± 0.1 g/L
I-131	< 4.0 pCi/L
Sr-89	< 4.0 pCi/L
Sr-90	1.47 ± 0.43 pCi/L

Virginia Department of Health

AMBIENT GAMMA EXPOSURE

January 1, 2017 through September 30, 2017

FIRST QUARTER REPORT

Location	Station	Net Exposure Rate mR/Std Qtr +/- 2S.D.		
Pocahontas State Park (Control)	D-40	31.30	+/-	11.19
Surry Power Station	D-20	19.06	+/-	8.73
North Anna Power Station	D-35	23.65	+/-	9.73
Surry – Lebanon Baptist Church	D-41	17.36	+/-	8.33
Surry – Lawnes Creek	D-42	20.98	+/-	9.16
Surry – Route 628	D-43	19.66	+/-	8.87
Jamestown – Historical site	D-44	21.16	+/-	9.20
Newport News - Lee Hall	D-45	24.70	+/-	9.94
Louisa County - Mineral	D-50	20.53	+/-	9.06
Louisa County – Wares Crossroads	D-51	20.45	+/-	9.05
Louisa County – Good Hope Church	D-52	22.48	+/-	9.48
Spotsylvania Route 614	D-53	19.58	+/-	8.85
Louisa County – Fred Hall	D-54	19.96	+/-	8.94
Naval Weapons Station – 1	D-73	16.93	+/-	8.23
Newport News – Fort Eustis	D-76	20.69	+/-	9.10
Williamsburg – Busch Gardens	D-77	22.61	+/-	9.51
Williamsburg – Airport	D-78	17.67	+/-	8.41
Surry – Scotland Wharf	D-79	17.40	+/-	8.34
Surry – Bacon’s Castle	D-80	16.84	+/-	8.21
Surry – Alliance	D-81	19.13	+/-	8.75
Surry – Hog Point	D-82	19.01	+/-	8.72
Louisa County – Route 685	D-84	20.42	+/-	9.04
Spotsylvania – Route 713	D-85	20.85	+/-	9.13
Louisa County – Bumpass Fire Dept.	D-86	23.22	+/-	9.64
Spotsylvania – Levy	D-87	21.94	+/-	9.37
Louisa County – Route 700	D-88	22.62	+/-	9.51
Louisa County – Aspen Hill	D-89	26.95	+/-	10.38
Radiological Health	Control 1	12.95	+/-	7.20
Radiological Health	Control 2	13.83	+/-	7.44

Virginia Department of Health

AMBIENT GAMMA EXPOSURE

January 1, 2017 through September 30, 2017

SECOND QUARTER REPORT

Location	Station	Net Exposure Rate mR/Std Qtr +/- 2S.D.		
Jamestown – Historical site	SPS-D-1	27.77	+/-	9.54
Williamsburg – Airport	SPS-D-2	28.46	+/-	10.67
Williamsburg – Busch Gardens	SPS-D-3	32.50	+/-	11.40
Newport News - Lee Hall	SPS-D-4	35.16	+/-	11.86
Naval Weapons Station – 1	SPS-D-5	27.80	+/-	10.54
Newport News – Fort Eustis	SPS-D-6	24.96	+/-	9.99
Surry – Route 628	SPS-D-7	22.40	+/-	9.47
Surry – Lawnes Creek	SPS-D-8	26.96	+/-	10.39
Surry Power Station	SPS-D-9	26.13	+/-	10.22
Surry – Hog Point	SPS-D-10	26.13	+/-	10.22
Surry – Bacon’s Castle	SPS-D-11	25.44	+/-	10.09
Surry – Alliance	SPS-D-12	25.99	+/-	10.20
Surry – Scotland Wharf	SPS-D-13	25.28	+/-	10.06
Surry – Lebanon Baptist Church	SPS-D-14	20.29	+/-	9.01
Louisa County - Mineral	NAPS-D-1	31.56	+/-	11.24
Louisa County – Wares Crossroads	NAPS-D-2	22.50	+/-	9.49
Louisa County – Good Hope Church	NAPS-D-3	30.78	+/-	11.10
Spotsylvania – Route 713	NAPS-D-4	25.44	+/-	10.09
Spotsylvania Route 614	NAPS-D-5	28.16	+/-	10.61
Spotsylvania – Levy	NAPS-D-6	32.75	+/-	11.45
Louisa County – Bumpass Fire Dept.	NAPS-D-7	31.99	+/-	11.31
Louisa County – Fred Hall	NAPS-D-8	26.91	+/-	10.37
Louisa County – Aspen Hill	NAPS-D-9	35.05	+/-	11.84
Louisa County – Route 685	NAPS-D-10	33.40	+/-	11.56
Louisa County – Route 700	NAPS-D-11	34.02	+/-	11.66
North Anna Power Station	NAPS-D-12	35.30	+/-	11.88
Pocahontas State Park (Control)	PSP-D-1	41.90	+/-	12.95
Radiological Health	ORH-D-1	12.66	+/-	7.12
Radiological Health	ORH-D-2	14.30	+/-	7.56

Virginia Department of Health

AMBIENT GAMMA EXPOSURE

January 1, 2017 through September 30, 2017

THIRD QUARTER REPORT

Location	Station	Net Exposure Rate mR/Std Qtr +/- 2S.D.		
Jamestown – Historical site	SPS-D-1	35.99	+/-	12.00
Williamsburg – Airport	SPS-D-2	24.74	+/-	9.95
Williamsburg – Busch Gardens	SPS-D-3	36.44	+/-	12.07
Newport News - Lee Hall	SPS-D-4	37.16	+/-	12.19
Naval Weapons Station – 1	SPS-D-5	25.17	+/-	10.03
Newport News – Fort Eustis	SPS-D-6	30.44	+/-	11.03
Surry – Route 628	SPS-D-7	29.39	+/-	10.84
Surry – Lawnes Creek	SPS-D-8	30.56	+/-	11.06
Surry Power Station	SPS-D-9	28.70	+/-	10.71
Surry – Hog Point	SPS-D-10	28.54	+/-	10.68
Surry – Bacon's Castle	SPS-D-11	25.51	+/-	10.10
Surry – Alliance	SPS-D-12	27.74	+/-	10.53
Surry – Scotland Wharf	SPS-D-13	26.23	+/-	10.24
Surry – Lebanon Baptist Church	SPS-D-14	26.66	+/-	10.33
Louisa County - Mineral	NAPS-D-1	30.53	+/-	11.05
Louisa County – Wares Crossroads	NAPS-D-2	30.91	+/-	11.12
Louisa County – Good Hope Church	NAPS-D-3	37.76	+/-	12.29
Spotsylvania – Route 713	NAPS-D-4	30.56	+/-	11.06
Spotsylvania Route 614	NAPS-D-5	30.49	+/-	11.04
Spotsylvania – Levy	NAPS-D-6	36.75	+/-	12.12
Louisa County – Bumpass Fire Dept.	NAPS-D-7	29.93	+/-	10.94
Louisa County – Fred Hall	NAPS-D-8	27.20	+/-	10.43
Louisa County – Aspen Hill	NAPS-D-9	38.43	+/-	12.40
Louisa County – Route 685	NAPS-D-10	29.77	+/-	10.91
Louisa County – Route 700	NAPS-D-11	39.22	+/-	12.53
North Anna Power Station	NAPS-D-12	34.47	+/-	11.74
Pocahontas State Park (Control)	PSP-D-1	48.59	+/-	13.94
Radiological Health	ORH-D-1	15.10	+/-	7.77
Radiological Health	ORH-D-2	15.91	+/-	7.98

Virginia Department of Health

VEGETATION

January 1, 2017 through September 30, 2017

Location	Date collected	Type	Isotope	Results pCi/Gram (wet weight)
Surry County	03/13/17			
Private garden		Mixed Greens	I-131	<0.01
SPS-V-1			Cs-134	<0.01
			Cs-137	<0.01
Louisa County	03/13/17			
Private Garden		Mixed Greens	I-131	<0.01
NAPS-V-1			Cs-134	<0.01
			Cs-137	<0.01
Surry County	09/25/17			
Private garden		Mixed Greens	I-131	<0.01
SPS-V-1			Cs-134	<0.01
			Cs-137	<0.01
Louisa County	09/25/17			
Private Garden		Mixed Greens	I-131	<0.01
NAPS-V-1			Cs-134	<0.01
			Cs-137	<0.01

Note: Vegetation is collected bi-annually when available.

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF HEALTH

OFFICE OF RADIOLOGICAL HEALTH

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BABCOCK & WILCOX

Virginia Department of Health

AIR PARTICULATE COMPOSITE SAMPLES

January 1, 2017 through September 30, 2017

Eastern Site Boundary – Ball field

FIRST QUARTER REPORT

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
1st	01/04/17	-	01/10/17	0.0004 +/- 0.0004

SECOND QUARTER REPORT

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
2nd	04/05/17	-	04/11/17	0.001 +/- 0.001

THIRD QUARTER REPORT

	Start	Date	Stop	Gross Alpha Activity pCi/meter ³
B&W-A-1				
3rd	07/05/17	-	07/11/17	0.001 +/- 0.001

Virginia Department of Health

SOIL

January 1, 2017 through September 30, 2017

Eastern Site Boundary / Six Mile Bridge Shoreline

Location	Date	Distance & Direction	Type	Alpha Activity ppm
Eastern Site Boundary Ball field B&W-S-1	06/22/2017	Site Boundary	Soil	<1.0
James River Shoreline Near Six Mile Bridge "control" B&W-S-2	06/22/2017	1.5 miles SW	Soil	<1.0

Soil samples collected annually.

Note: Uranium separation followed by alpha counting.

SURFACE WATER

January 1, 2017 through September 30, 2017

Eastern Site Boundary Shoreline / Six Mile Bridge Shoreline

Location	Date	Distance & Direction	Alpha Activity ppb
James River Shoreline Near Ball field at eastern site boundary B&W-W-1	06/22/2017	Approx. 3 miles downstream	<2.0
James River Shoreline Near Six Mile Bridge "control" B&W-W-2	06/22/2017	Approx. 1.5 miles upstream	<2.0

Surface water samples collected annually.

Note: Uranium separation followed by alpha counting.

Virginia Department of Health

VEGETATION

January 1, 2017 through September 30, 2017

Eastern Site Boundary / James River Shoreline

Location	Date	Distance & Direction	Alpha Activity ppm
Eastern site boundary Ball field B&W-V-1	06/22/2017	Approx. 3 miles downstream	<1.0
James River Shoreline off Rt. 460 "control" B&W-V-2	06/22/2017	Approx. 4.5 Miles SW	<1.0

Vegetation collected annually.

Note: Uranium separation followed by alpha counting.

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF HEALTH

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EMERGENCY PREPAREDNESS

EMERGENCY PREPAREDNESS

The Office of Radiological Health (ORH) located within the Virginia Department of Health (VDH) is one of the lead response agencies for emergencies involving the potential or actual release of radioactive materials. Overall, state level emergency response is described in the Commonwealth of Virginia Radiological Emergency Response Plan (COVERERP), which is developed and maintained by the Virginia Department of Emergency Management (VDEM). In addition to generic guidelines for responding to any major radiological emergency, the response procedures contain segments addressing response to several specific types of radiological incidents. This includes sections which provide information needed for response to Licensee and Transportation accidents. Other sections contain background information and response guidance for accidents at fixed nuclear facilities. Plans are also being developed to respond to possible radiological terrorist attacks, which may include detonation of a radiological dispersion device (RDD aka “dirty bomb”), an improvised nuclear device (IND), or a military grade nuclear warhead.

When responding to any radiological emergency, the primary tasks of the Office of Radiological Health are to locate, identify, and predict the impact of any radioactive materials released to the environment. Based on the predicted or known impact, ORH then recommends appropriate measures to protect the public. ORH would also be tasked with helping to supervise the cleanup of radiological contamination and ensuring the proper disposal of radioactive waste. An ORH duty officer maintains 24-hour coverage to provide initial assessment/assistance for local responders and may also initiate the mobilization/deployment of other trained staff to respond to a radiological emergency when needed.

Under the provisions of current Federal Emergency Management Agency (FEMA) regulations, ORH conducts or participates in periodic drills that are designed to provide team training and to test emergency plans and procedures. The scope of these drills ranges from receiving and acknowledging simulated emergency communications to full-scale team deployment.

Federal regulations for commercial nuclear power generating facilities stipulate that a full-scale exercise involving appropriate local government participation and testing all significant response elements must be conducted and evaluated every other year. Because there are two such facilities, Surry and North Anna Nuclear Power Stations, Commonwealth of Virginia agencies will perform exercise activities on a yearly basis, alternating between the sites each year.